

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 09/981,784
Attorney Docket No.: Q66664

REMARKS

Claims 1-16 and 19-21 are all the claims pending in the application. By this Amendment, Applicant amends claim 20 to further clarify the invention and adds claims 22-24. Claims 22-24 are clearly supported throughout the specification *e.g.*, page 5 of the specification.

Summary of the Office Action

The Examiner withdrew the previous rejections. The Examiner, however, found new grounds for rejecting the claims. Specifically, claims 1-16 and 19-21 stand rejected under 35 U.S.C. § 103(a).

Prior Art Rejections

Claims 1-16 and 19-21 are rejected under 35 U.S.C. § 103(a). Applicant respectfully traverses these grounds of rejections in view of the following comments.

Sriram in view of Ozluturk

Claims 1, 3, 6-13, and 19-21 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,366,606 to Sriram (hereinafter “Sriram”) in view of U.S. Patent No. 6,366,607 to Ozluturk et al. (hereinafter “Ozluturk”). Of these rejected claims, only claims 1, 9-12, and 20 are independent.

These independent claims 1, 9-12, and 20, in some variation, *inter alia* require a digital processor that can perform both symbol rate processing and at least a portion of the chip rate processing. That is, the digital processor performs both symbol rate processing which is decoding of the received information and at least some of the chip rate processing. Chip rate processing is despreading or re-separating the transmitted information of the different users in

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 09/981,784
Attorney Docket No.: Q66664

the receiver and assigning this information to the different users (*see* page 5, lines 21 to 31 of the specification). Thereby, over-dimensioning of the base station is lessened and a single digital processor can despread as well as decode the received information.

The Examiner acknowledges that Sriram fails to disclose or suggest a single processor performing both chip rate processing and symbol rate processing (*see* page 2 of the Office Action). The Examiner, however, alleges that Ozluturk cures the deficient teachings of Sriram. Specifically, the Examiner alleges that Ozluturk discloses a signal processor 67 executing chip rate processing and symbol rate processing (*see* page 2 of the Office Action). Applicant respectfully disagrees. Applicant has carefully studied Ozluturk's discussion of the signal processor and Applicant respectfully submits that Ozluturk's processor does not perform even parts of the chip rate processing.

Ozluturk relates to a digital spread spectrum communication system employing pilot-aided coherent multipath demodulation that effects a substantial reduction in global-pilot and assigned-pilot overheads (*see* Abstract). Specifically, Ozluturk discloses a receiver 29 that includes a demodulator 57a, 57b which mixes down the transmitted broadband signal 55 into an intermediate carrier frequency 59a, 59b. A second down conversion reduces the signal to baseband. The QPSK signal is then filtered 61 and mixed 63a, 63b with the locally generated complex pn sequence 43a, 43b which matches the conjugate of the transmitted complex code. Only the original waveforms which were spread by the same code at the transmitter 27 will be effectively despread. Others will appear as noise to the receiver 29. The data 65a, 65b is then

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 09/981,784
Attorney Docket No.: Q66664

passed onto a signal processor 59 (depicted as signal processor 67 in Fig. 2) where FEC decoding is performed on the convolutionally encoded data (Fig. 2; col. 3, lines 41 to 53).

In other words, in Ozluturk, the signal is despread prior to being input into the signal processor 59/67. That is, chip rate processing is not performed by the digital processor but is performed prior to the signals reaching the digital processor. Moreover, in Ozluturk, the signal processor 59/67 only performs forward error correction (FEC), which is decoding of the encoded data. Ozluturk, similar to the conventional technique's described in the background of the invention and Sriram, discloses a receiver with a signal processor for performing only the symbol rate processing (Fig. 2), whereas the chip rate processing is performed by elements such as channel despreaders (Fig. 4) prior to the decoding by the signal processor. In short, Ozluturk is no different from the processor disclosed in Sriram or from the processor disclosed in the background of the invention and as such clearly fails to cure the deficient teachings of Sriram.

Therefore, a digital processor that can perform both symbol rate processing and at least a portion of the chip rate processing, as set forth in some variation in the independent claims 1, 9-12, and 20 is not suggested by the combined teachings of Sriram and Ozluturk, which lack having a digital processor execute at least a portion of the chip rate processing. For at least these exemplary reasons, claims 1, 9-12, and 20 are patentable over Sriram in view of Ozluturk. Accordingly, Applicant respectfully requests the Examiner to withdraw this rejection of claims 1, 9-12, and 20. Claims 3, 6-8, 13, 19, and 21 are patentable at least by virtue of their dependency on claim 1, 12, or 20.

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 09/981,784
Attorney Docket No.: Q66664

In addition, claim 20 recites: “means for switching over from said means for executing symbol rate processing to said means for executing chip rate processing.” The Examiner acknowledges that Sriram fails to disclose or suggest the switching means as set forth in claim 20. The Examiner, however, alleges that Ozluturk cures the deficient teachings of Sriram (see page 4 of the Office Action). Applicant respectfully disagrees.

Col. 6, lines 25 to 37 of Ozluturk recites:

As described earlier, the present invention can also be performed with carrier-offset correction at the symbol level. An alternative embodiment 150 implemented at the symbol level is shown in FIG. 10. The difference between the chip and symbol level processes occur where the output of the conventional PLL 133 is combined. At the symbol level, the PLL output 140 does not undergo chip conversion 141 and is introduced into the AMF 79 weights after the rake receiver 101 by another n-dimensional mixer 153. The phase correction 140 feedback must also be mixed 154₁, 154₂, 154_n with the outputs 95₁, 95₂, 95_n of each of the plurality of channel despreaders 85₁, 85₂, 85_n and mixed 156 with the output 135 of the pilot despreaders 87.

As is visible from the above-quoted passage, in Ozluturk, there are a number of despreaders for chip rate processing and a number of decoders 97₁, 97₂, 97_n, for symbol rate processing (Fig. 4, col. 4, lines 38 to 41). However, there is no disclosure or suggestion of a digital processor 67 having the switching means to switch between two types of processing. In fact, since separate elements are provided for the symbol rate processing and chip rate processing, in Ozluturk, there is no need to have a switch for switching between the two. That is, since separate elements are

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 09/981,784
Attorney Docket No.: Q66664

provided for each type of processing, these processes can be performed concurrently and the switch is not needed. In short, Ozluturk does not cure the deficient teachings of Sriram. For at least this additional exemplary reason, claim 20 is patentable over Sriram in view of Ozluturk.

Sriram in view of Ozluturk and Warty

Claims 2, 14, and 16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Sriram in view of Ozluturk and U.S. Patent No. 4,827,499 to Warty (hereinafter “Warty”). Applicant respectfully traverses this rejection in view of the following comments.

Of these rejected claims 2, 14, and 16, claim 2 depends on claim 1 and claims 14 and 16 depend on claim 12. Applicant has already demonstrated that the combined teachings of Sriram and Ozluturk fail to teach or suggest a digital signal processor configured to perform a symbol rate processing and at least parts of a chip rate processing. Warty is cited only for its teachings of processors performing task allocation (*see* page 4 of the Office Action). Clearly, Warty does not cure the deficient teachings of Sriram. Together, the combined teachings of these references would not have (and could not have) led the artisan of ordinary skill to have achieved the subject matter of claims 1 and 12. Since claims 2, 14, and 16 dependent upon claim 1 or 12, they are patentable at least by virtue of their dependency.

Sriram in view of Ozluturk, Warty, and Komara

Claims 4, 5, and 15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Sriram, Ozluturk and Warty, and further in view of U.S. Patent No. 6,161,024 to Komara (hereinafter “Komara”). Applicant respectfully traverses this rejection in view of the following comments.

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 09/981,784
Attorney Docket No.: Q66664

Of these rejected claims 4, 5, and 15, claims 4 and 5 depend on claim 1 and claim 15 depends on claim 12. Applicant has already demonstrated that the combined teachings of Sriram, Ozluturk, and Warty fail to teach or suggest a digital signal processor configured to perform a symbol rate processing and at least parts of a chip rate processing. Komara is only cited for its teachings of a group of digital processors (*see* page 5 of the Office Action). Clearly, Komara does not cure the deficient teachings of Sriram, Ozluturk, and Warty. Together, the combined teachings of these references would not have (and could not have) led the artisan of ordinary skill to have achieved the subject matter of claims 1 and 12. Since claims 4 and 5 depend on claim 1 and claim 15 depends on claim 12, they are patentable at least by virtue of their dependency.

New Claims

In order to provide more varied protection, Applicant adds claims 22-24. Claims 22-24 are patentable at least by virtue of their dependency on claim 1 or 20.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly invited to contact the undersigned attorney at the telephone number listed below.

AMENDMENT UNDER 37 C.F.R. § 1.111
U.S. Appln. No. 09/981,784
Attorney Docket No.: Q66664

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



Nataliya Dvorscik
Registration No. 56,616

SUGHRUE MION, PLLC
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

WASHINGTON OFFICE
23373
CUSTOMER NUMBER

Date: April 13, 2006

Attorney Docket No.: Q66664